

Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

COMPLETE IF KNOWN

Application Number	10/092,214
Filing Date	March 5, 2002
First Named Inventor	Eugene M. Levin
Group Art Unit	3662
Examiner Name	UNKNOWN
Attorney Docket Number	31257-UT

Sheet 1 of 4

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	U.S. Patent Document Kind Code ² Number (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
JA		3,582,016	B.C. Sherman	06/01/1971	
		3,695,103	F.C.W. Olson	10/03/1972	
		3,868,072	C.P. Fogarty	02/25/1975	
		4,097,010	G. Colombo, et al.	06/27/1978	
		4,580,747	J. Pearson	04/08/1986	
		4,727,373	M.B. Hoover	02/23/1988	
		4,824,051	U. Engelking	04/25/1989	
		4,923,151	T.G. Roberts, et al.	05/08/1990	
		5,082,211	R.O. Werka	01/21/1992	
		5,163,641	T. Yasaka	11/17/1992	
		5,183,225	R.L. Forward	02/02/1993	
		6,116,544	R.L. Forward, et al.	09/12/2000	
		6,173,922	R.P. Hoyt, et al.	01/16/2001	
		6,260,807	R.P. Hoyt, et al.	07/17/2001	
		6,286,788	R.P. Hoyt, et al.	09/11/2001	
		6,290,186	R.P. Hoyt, et al.	09/18/2001	
Examiner Signature	<i>[Signature]</i>		Date Considered	8/22/02	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

F:\Diane\Pearson\1449form.doc DSN 31257-1001

1. Unique citation designation number. 2. See attached Kinds of U.S. Patent Documents. 3. Enter office that issued the document, by the two-letter code (WIPO Standard ST.3).
4. For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6. Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box

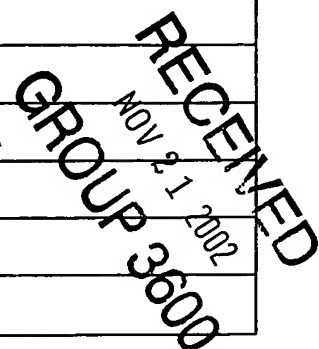
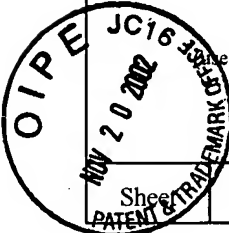
PTO/SB/08B (10-96)

Approved for use through 10-31-99. OMB 0651-003

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				COMPLETE IF KNOWN	
				Application Number	10/092,214
				Filing Date	March 5, 2002
				First Named Inventor	Eugene M. Levin
				Group Art Unit	3662
				Examiner Name	UNKNOWN
Sheet 2 of 4	Attorney Docket Number		31257-UT		



OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
ju		Anselmo, J.C., "NRO Orbiting Spacecraft Studies Tether Survivability", <i>Aviation Week & Space Technology</i> , July 1, 1996, pg. 24	
		Barry, P., "A Little Physics and a Lot of String", <i>NASA Science News</i> , June 9, 2000, http://science.msfc.nasa.gov	
		Bekey, I., "Tethering a new technique for payload deployment", <i>Aerospace America</i> , March, 1997, pp. 36-40,	
		Bekey, I., "Tethers Open New Space Options", <i>Astronautics & Aeronautics</i> , April, 1983, pp. 33-40	
		Carroll, J.A., "SEDS Deployer Design and Flight Performance", paper WSEDSA-1 at the 4 th International Conference on Tethers in Space, April, 1995, pp. 593-600, Washington, D.C.	
		Cheek, D., "Failure-Resistant Multiline Tethers", <i>NASA TechFinder: Tech Brief</i> , April, 2000, pg. 50, Vol. 24, Issue 4 (found on Internet at http://technology.nasa.gov)	
		Cheek, D., "Using Electromagnetic Drag on Tethers to De-Orbit Spacecraft", <i>NASA TechFinder: Tech Brief</i> , March, 2000, p. 75, Vol. 24, Issue 3 (found on Internet at http://technology.nasa.gov)	
		Dooling, D., "Plugged in to space", <i>NASA Science News</i> , October 15, 1998, http://science.msfc.nasa.gov	
		Dooling, D., "Setting Sail for the Stars", <i>NASA Science News</i> , April 8, 1999, http://science.nasa.gov	
		Dooling, D., "Spacecraft may fly on 'empty' using propulsive tether concept", <i>NASA Science News</i> , January 22, 1999, http://science.nasa.gov	
Examiner Signature	[Signature]		Date Considered
		8/22/03	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

F:\Diane\Pearson\1449form-2-pat.doc DSN 31257-1001

¹ Unique citation designation number. 2. Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box

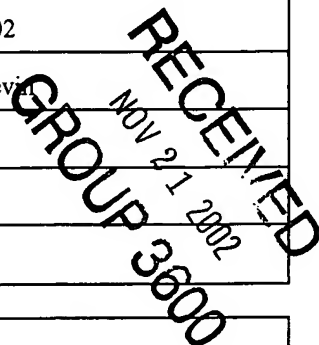
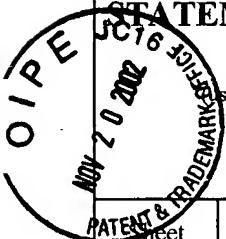
PTO/SB/08B (10-96)

Approved for use through 10-31-99. OMB 0651-003

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				COMPLETE IF KNOWN	
				Application Number	10/092,214
				Filing Date	March 5, 2002
				First Named Inventor	Eugene M. Levin
				Group Art Unit	3662
				Examiner Name	UNKNOWN
Sheet 3 of 4	Attorney Docket Number 31257-UT				



OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
<i>[initials]</i>		"Electronic Technologies Sought for Orbital Debris Tether", <i>Space Business News</i> , June 9, 1999, Vol. 17, No. 12, Phillips Business Information, Inc.	
<i>[initials]</i>		Flinn, E.D., "Tethers for tidying up space", <i>Aerospace America</i> , January, 1999, pg. 28, American Institute of Aeronautics and Astronautics, Inc.	
<i>[initials]</i>		Forward, R.L., et al., "Failsafe Multiline Hoytether Lifetimes", <i>31st AIAA/ASME/SAE/ASEE Joint Propulsion Conference</i> , July 10-12, 1995, AIAA 95-2890, San Diego, California, American Institute of Aeronautics and Astronautics, Washington, D.C.	
<i>[initials]</i>		Forward, R.L., <i>Failsafe Multistrand Tethers for Space Propulsion</i> , Final Report on NASA Contract NAS8-39318 SBIR 91-1 Phase I, July, 1992, Forward Unlimited, Malibu, California	
<i>[initials]</i>		Forward, R.L., "Failsafe Multistrand Tether Structures for Space Propulsion", <i>AIAA/SAE/ASME/ASEE 28th Joint Propulsion Conference and Exhibit</i> , July 6-8, 1992, Nashville, Tennessee, American Institute of Aeronautics and Astronautics, Washington, D.C.	
<i>[initials]</i>		Gallagher, D.L., et al., <i>Electrodynamic Tether Propulsion and Power Generation at Jupiter</i> , NASA/TP-1998-208475, June, 1998	
<i>[initials]</i>		Heinen, G.W., et al., <i>Progress on Development of the Terminator Tether™</i> , January 2, 2002, http://sli.nasa.gov/ast/abstracts	
<i>[initials]</i>		"High Strength-to-Weight Tapered Hoytether for LEO to GEO Payload Transport", <i>NASA TechFinder</i> , July 24, 2001, http://technology.larc.nasa.gov	
<i>[initials]</i>		Johnson, L., et al., "Electrodynamic Tethers for Spacecraft Propulsion", <i>36th Aerospace Sciences Meeting & Exhibit</i> , January 12-15, 1998, Reno, Nevada, Paper AIAA 98-0983, American Institute of Aeronautics and Astronautics, Reston, VA.	
Examiner Signature	<i>[Signature]</i>		Date Considered <i>8/22/02</i>

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

F:\Diane\Pearson\1449form-2-pg2-pat.doc DSN 31257-1001

¹ Unique citation designation number. 2. Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box

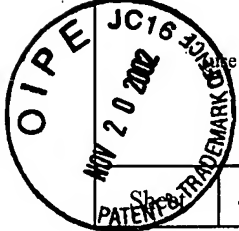
PTO/SB/08B (10-96)

Approved for use through 10-31-99. OMB 0651-003

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		COMPLETE IF KNOWN	
		Application Number	10/092,214
		Filing Date	March 5, 2002
		First Named Inventor	Eugene M. Levin
		Group Art Unit	3662
		Examiner Name	UNKNOWN
4 of 4	Attorney Docket Number	31257-UT	



RECEIVED
 NOV 21 2002
 GROUP 3600

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
<i>h</i>		Johnson, L, "Propulsive Small Expendable Deployer System Mission (ProSEDS)", <i>Proceedings of the OAST 8th Advanced Propulsion Workshop</i> , JPL, Pasadena, California, May 20-22, 1997	
<i> </i>		"A Lightweight System for End-of-Life Deorbit of Low-Earth-Orbit Spacecraft", <i>SBIR Success Stories</i> , December 28, 2001, Technology Transfer Program, Marshall Space Flight Center (found on Internet at http://techtran.msfc.nasa.gov)	
		Lorenzini, E.C., <i>In-Space Transportation with Tethers</i> , September, 1999, Smithsonian Institution, Astrophysical Observatory, Cambridge, Massachusetts	
		Malone, J., "Tethered Transportation in Space", <i>Marshall Space Flight Center News Releases</i> , March 26, 1999 (found on Internet at http://www.msfc.nasa.gov)	
		McCoy, J.E., et al., "Plasma Motor-Generator (PMG) Flight Experiment Results", <i>Proceedings of the 4th International Conference on Tethers in Space</i> , April, 1995, pp. 57-82, Washington, D.C.	
		"NASA advanced concepts to be described in Thursday session", <i>Aerospace Daily</i> , March 23, 1999, pg. 425, Vol. 189, No. 55, The McGraw-Hill Companies, Inc.	
		Penzo, Dr. P.A., et al., Ed., <i>Tethers In Space Handbook - Second Edition</i> , May, 1989, NASA Office of Space Flight, NASA Headquarters, Washington, D.C.	
		Raitt, W.J., et al., "The NASA/ASI TSS-1 Mission: Summary of Results and Reflight Plans", <i>Proceedings of the 4th International Conference on Tethers in Space</i> , April, 1995, pp. 107-118, Washington, D.C.	
<i>h</i>		Root, J., "Removing Space Debris from LEO", <i>Aerospace Technology Innovation</i> , May/June 2000, Vol. 8, No. 3 (found on Internet at http://www.nctn.hq.nasa.gov/innovation/Innovation)	
		Schmidt, G., "Nuclear and future flight propulsion", <i>Aerospace America</i> , December, 2000, pg. 54, American Institute of Aeronautics and Astronautics, Inc.	
Examiner Signature			Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \\\WDMA\DOCS\Diane\Pearson\1449form-2-pg3-pat.doc DSN 31257-1001

¹ Unique citation designation number. 2. Applicant is to place a check mark here if English language Translation is attached.